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Total Pages : 3

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BSIT/D-12

COMPUTER SYSTEM ARCHITECTURE–I

Paper–BSIT-501

ne Allowed : 3 Hours] [Maximum Marks : 45

te : Attempt **five** questions in all. Question No. 1 is compulsory. Attempt **one** question from each Unit.

(a) What is the difference between micro-operation and macro-operation ? 2

(b) What is the difference between Hardwared control and microprogrammed control ? 2

(c) Why control data register is called pipeline register ? 2

(d) What is PSW ? 2

(e) What is effective address ? 1.

UNIT–I

(a) What is instruction cycle ? What are different phases of instruction cycle ? 6

(b) A computer uses a memory unit with 256 K words of 32 bits each. A binary instruction code is stored in one word of memory having 64 registers. The instruction has four parts Indirect bit, op code, register code and address pad. Find :

(i) How many bits are there in op code, register code and address ?

(ii) Draw Instruction word format and indicate number of bits in each part.

(iii) How many bits are there in Data and address input of the memory ?

3. (a) What are memory reference instructions and register reference instructions ?

(b) What are two instructions needed in basic computer in order to set the E flip-flop to 1 ?

UNIT–II

4. (a) Design an arithmetic circuit with one selection variable and two n bit data inputs A and B :

S	Cin = 0	Cin = 1
0	d = A + B	d = A + 1
1	d = A – 1	d = A – B

(b) A digital computer has a common bus system for 16 register for 32 bits each :

(i) How many selection I/P's are there in each multiplexer ?

(ii) What size of multiplexer are there in bus ?

(iii) How many multiplexer are needed ?

(a) Explain the usefulness of three state buffer with example. 6

(b) Draw a block diagram of 4 bit decrementer using full adder circuit. 3

UNIT–III

(a) What are the methods of implementing a control unit ? Discuss advantages and disadvantages of each method. 6

(b) Explain, how microinstruction format is different from computer instruction format. 3

(a) Write notes on, control word, control memory microprogram sequence. 6

(b) What is the process of address sequencing ? 3